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ABSTRACT

The purpose of this survey was to determine the attitude of Association for Intercollegiate Athletics for Women (AIAW) coaches toward the use of selected ergogenic aids by women intercollegiate athletes. Questionnaires were sent to coaches of certain AIAW National and/or Regional Tournament teams. The general opinion items indicated that the majority of the population felt that outside sources to improve physical performance should be considered unethical because their use changes the nature of athletic competition. The term "outside sources" included all ergogenic aids but not pre-game taping or massage. There was also a sharp decrease in the number of respondents who considered it unethical to use ergogenic aids to assist recovery after athletic performance was completed. Specific questions concerned with the following five ergogenic aids: (a) amphetamines, (b) sedatives, (c) androgenic-anabolic steroids, (d) local anesthetics, and (e) oral contraceptives. Extensive use was made of the "no opinion" response to these questions, indicating a lack of knowledge concerning the effects of these ergogenic aids. (PB)

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OPINION OF AIAW COACHES TOWARD THE USE OF SELECTED ERGOGENIC AIDS

SP009 393

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Sports Illustrated (7) ran a series of three articles by Gilbert in 1969 which opened the eyes of many American sportsmen and women to the problem of drugs in sport. Gilbert classified the more common ergogenic aids (work-producing substances) used today into four areas: 1) amphetamines, which are used to depress the symptoms of fatigue; 2) sedatives, which are used to free the athlete of tension; 3) local anesthetics, which are used to control pain resulting from athletic injury; and 4) anabolic steroids, which are mainly used to increase muscle mass in the user to artificially create a better athletic instrument.

In 1972, Csaky (4) identified the use of hormones with reference to women athletes. Steroids can be used to increase the female athlete's muscle mass in an attempt to close the gap between record performances of male and female athletes. Secondly, women can use oral contraceptives to lessen the menstrual handicap.

Relatively little has been published concerning the use of ergogenic aids by women athletes. However, factors affecting drug use by athletes would relate to women athletes as well:

1. the highly competitive nature of modern sport;
2. far greater rewards today from participation in sport even at the amateur level; and
3. concurrent rapid advances of pharmacology producing a wide variety of drugs. (12)

It is apparent that the changes in competition for the highly skilled woman athlete at the professional and amateur levels of sport are bringing the same pressures to bear on female athletes as they have on male athletes in the past. Larger amounts of money

offered at women's professional athletic competitions (8), the 1973 change in AIAW guidelines concerning athletic scholarships (6), and recent legislation to give equality to men's and women's intercollegiate athletic programs (2) seem to be directing women toward the path that men's athletics has taken. "There is nothing more devious than a devious woman and there are plenty of women who are getting the coaching bug and are being caught up in the 'win' syndrome." (14)

In an AAHPER-sponsored publication, Clarke (3) contends that the coach is instrumental in advising the athlete concerning the use of ergogenic aids to increase athletic performance. "The coach is faced now with the need for decisions and actions concerning a problem of a scope, immediacy, significance, and publicity neither previously experienced nor anticipated in professional preparation." The present investigation was designed to determine the opinion of coaches of women's intercollegiate athletes toward the use of selected ergogenic aids by women intercollegiate athletes.

PROCEDURE

The population surveyed was drawn from two sources. The Meet Directors for the 1973 AIAW National Championships provided lists of teams which had competed in swimming and diving, gymnastics, and/or track and field. AIAW Regional Representatives assisted in locating lists of teams which had competed in their regional basketball, volleyball or gymnastics tournaments in 1972-1973. A mailing list of 442 coaches of women intercollegiate athletes was compiled from these sources.

A researcher-constructed questionnaire was used to determine the opinion of the population toward the use of selected ergogenic aids. The Likert response technique to closed-form statements (11) was used as the format for the 37 statements in Section I. Section II of the questionnaire was used to gather information on AIAW geographical region, type of training, sport coached, sex, age, and coaching experience.[1] This information was used for additional statistical analysis of the data.

The letter of transmittal, the questionnaire, and a stamped, self-addressed envelope were sent to each of the coaches on February 11, 1974. A follow-up letter was mailed March 1, 1974, to those who had not yet replied. Sixty-two percent (273) of the total population responded before April 3, 1974.

The chi-square test (.05 level of significance) was used to detect items in which the population's response was significantly different from a uniform response. Descriptive statistics were used to determine the general opinion concerning each item. Further analysis of the population's response with respect to AIAW geographical area, sex, age, coaching experience, training and sport coached was carried out using the chi-square test of independence (.05 level of significance).

The instrument allowed a choice of five responses (Strongly Agree, Agree, No Opinion, Disagree, Strongly Disagree) and the data analysis used this format. However, for the following discussion the tables indicate percent response in collapsed categories (Agree, No Opinion, Disagree).

[1]This information is available from the author upon request.

DISCUSSION

All items reached a significant value for the chi-square test; the responses of the population were clustered unlike a uniform response. The total population of AIAW coaches indicated an opinion toward each of the 37 statements.

General Opinion Items

The general opinion items reflected the total population's opinion of the overall use of ergogenic aids in athletics. From Table 1, it is apparent that coaches of women intercollegiate athletes disagree with the use of such aids. The majority of the population felt that outside sources to improve physical performance should be considered unethical because their use changes the nature of athletic competition. Pre-game taping and massage were not considered similar to ergogenic aids.

Even if ergogenic aids were available to all athletes and no physical danger was associated with their use, most AIAW coaches did not consider it ethical to use ergogenic aids. However, there was a sharp decrease in the number of respondents who considered it unethical to use ergogenic aids to assist recovery after athletic performance was completed. Perhaps more coaches believed that once performance is completed, the use of ergogenic aids would not affect the nature of competition and therefore would be ethical.

Specific Opinion Items

The specific opinion items reflected the population's opinion toward the effects of the five ergogenic aids included in this

TABLE 1

PERCENT RESPONSE TO GENERAL OPINION ITEMS

Item	Agree	No Opinion	Disagree
1. Ergogenic aids merely enhance an athlete's innate ability and do not change the nature of competition.	9.4	7.2	83.4
2. It should be considered unethical to use ergogenic aids during any athletic competition.	85.9	1.9	12.3
3. It should be considered unethical to use ergogenic aids to assist recovery after athletic performance is completed.	57.2	10.0	32.7
5. The use of ergogenic aids is in the same category as improving performance by pre-game taping or massage.	3.7	3.4	92.9
6. Assuming that ergogenic aids are available to all athletes, their use should be considered fair practice.	4.1	3.7	92.2
7. As long as there is no physical danger to the athlete involved, the use of ergogenic aids should be considered ethical.	7.8	5.2	86.9
20. The essence of sport is natural competition between two or more people; therefore, the use of outside sources to improve physical performance should be considered unethical.	85.9	4.5	9.6

investigation. The responses to these items, summarized in Table 2, indicated a lack of knowledge concerning the effects of amphetamines, sedatives, androgenic-anabolic steroids, local anesthetics, and oral contraceptives on athletic performance. Except for items 9, 17, and 22, the means were so close to 3 (No Opinion) and the standard deviations so large that no opinion was determined. A possible reason for the extensive use of the No Opinion response to items in this category was noted by many of the respondents themselves. Although personal comments were not requested on the questionnaire, many chose this method to suggest that a No Opinion response was necessitated by insufficient information to form an opinion on the items concerned.

Much of the literature pertaining to the effects of these five drugs contains conflicting reports. For example, Smith and Beecher (13) reported increased performance from the ingestion of amphetamines in 75 percent of their tests using swimmers, runners, weight throwers and shot putters. In the same year, Karpovich (10) found no significant effect on endurance or the speed of athletic performance in these same skills after the ingestion of amphetamines. Conflicts such as this would tend to support the uncertainty of opinion expressed by many respondents.

The three items which did suggest a total population opinion concerned amphetamines, local anesthetics, and the psychological effects of using drugs. Apparently the respondents have had more exposure to information in these three areas. Improved performance was not solely the result of psychological effects of the drug used according to 61 percent of those surveyed. Although Ariel and

TABLE 2

PERCENT RESPONSE TO SPECIFIC OPINION ITEMS

Item		Agree	No Opinion	Disagree
9.	Amphetamines are of benefit during recovery from athletic performance.	4.5	28.3	67.2
10.	Amphetamines are effective in dispelling fatigue during athletic performance.	24.3	32.1	43.6
12.	Sedatives are effective in calming an athlete before athletic performance.	33.9	28.0	38.1
14.	Androgenic-anabolic steroids are effective in increasing muscle mass in athletes.	42.7	38.2	19.1
16.	Local anesthetics are effective in allowing an athlete to continue to play.	62.1	11.9	26.0
17.	Local anesthetics used for an athletic injury may allow a more serious injury to occur if the athlete continues to play.	90.0	2.6	7.4
19.	Oral contraceptives can be considered an effective aid to athletic performance because they can delay menstrual flow until after athletic performance.	24.3	22.4	53.3
21.	Improvement in athletic performance after using ergogenic aids should be attributed to psychological effects only.	13.7	25.2	61.1
22.	Relying on the use of ergogenic aids to improve athletic performance may cause harmful psychological effects in the athlete.	74.0	19.0	7.0

Saville (1) only investigated this area in relation to anabolic steroids, it was reported that placebo treatment produced significantly greater increases in strength than were found in the control group. No other published research was found which related the effects of the other drugs included in this investigation to psychological causes. Almost three quarters of the respondents indicated that harmful psychological effects could occur in an athlete who relied upon the use of ergogenic aids to improve his performance. No published research has been found to support this viewpoint.

The items dealing with sedatives, steroids, and oral contraceptives received a wide range of responses. Although all three are used by athletes, AIAW coaches did not agree or disagree with these statements concerning the effects of these drugs. The effectiveness of oral contraceptives as an ergogenic aids presented a problem to many of the respondents. The use of this drug had apparently not been considered as an aid to athletic performance. Many of the coaches appended short comments that reflected a cursory knowledge of the contraceptive effects of this drug but uncertainty concerning the ergogenic effects.

Reasons Supporting Guidelines

The items in this section reflected whether or not the respondents had specific reasons to advocate guidelines for the use of drugs by women intercollegiate athletes. Unlike the previous section where the responses varied greatly (large standard deviations)

resulting in a mean near 3 (No Opinion), many of the responses to items in this section clustered closely around the No Opinion response. Table 3 indicates the percent response to items in this section.

Only three items elicited a directed opinion from the total population (items 27, 30, 32). Eighty percent of the AIAW coaches surveyed did not believe a highly skilled athlete would use any method to improve performance. Even though respondents expressed confidence in the judgment of their athletes, almost half did not give an opinion as to the number of women intercollegiate athletes presently using ergogenic aids. It was also felt that if athletes did use ergogenic aids, it was probably initiated before they knew the possible side effects.

Other items in this section had interesting responses although the majority response yielded no opinion. The 27 percent who agreed the coach was aware of the use of drugs by athletes would seem to indicate a substantial part of the population believed some coaches do advocate or tolerate the use of ergogenic aids by their athletes. It was also noted that more AIAW coaches attributed initiation of drug use to the athlete than the coach. The population had diverse opinion regarding the influence of competition and winning on the use of drugs to improve athletic performance.

The total population did not fully support any of the reasons suggested to substantiate a need for guidelines to control the use of ergogenic aids by women intercollegiate athletes. This apparently did not mean that AIAW coaches felt guidelines were not needed. The following section verifies this point.

TABLE 3

PERCENT RESPONSE TO REASONS SUPPORTING GUIDELINES

Item		Agree	No Opinion	Disagree
23.	Athletes who use ergogenic aids generally do so without the knowledge of their coach.	39.8	33.1	27.1
24.	The use of ergogenic aids is usually initiated at the advice of the coach.	14.9	36.4	48.7
25.	The use of ergogenic aids is usually initiated by the athlete.	41.6	39.8	18.6
26.	Athletes usually begin using ergogenic aids after experimenting with them outside of athletics.	38.4	44.1	17.5
27.	A highly skilled athlete will generally use any method available to improve performance.	9.3	11.6	79.1
28.	Ergogenic aids are used extensively by male and female athletes at the Olympic level of competition.	22.1	43.5	34.4
29.	If there is an increased emphasis placed on competition and winning, individual athletes may use ergogenic aids more readily.	63.9	10.2	25.9
30.	Athletes often begin using ergogenic aids before knowing the side effects.	86.7	10.6	2.7
31.	If women intercollegiate athletes are allowed to use ergogenic aids during the athletic season, they often continue to use them after the sport season has finished.	47.3	45.4	7.3
32.	The number of women intercollegiate athletes using ergogenic aids at the present time is very small.	53.6	42.2	4.2

Suggested Guidelines for AIAW

The response to items in this section reflected the total population's opinion toward suggested AIAW guidelines to control the use of ergogenic aids by women intercollegiate athletes. The information included in Table 4 indicated an extremely strong population opinion in favor of establishing guidelines for AIAW athletes. Eighty-one percent of the coaches surveyed apparently considered the use of drugs too hazardous and possibly too immediate a problem in women's intercollegiate athletics to be able to afford the luxury of waiting to see what would occur without guidelines.

The five items pertaining to the use of each of the ergogenic aids included in this investigation produced some of the strongest responses of any statement in the questionnaire. The use of amphetamines, sedatives and androgenic-anabolic steroids was disagreed with strongly by AIAW coaches. A majority of the respondents also disagreed with the use of local anesthetics and oral contraceptives but the opinion was not as strong as noted for the previously mentioned drugs.

Despite the fact that the population was opposed to the use of drugs by women athletes and felt that guidelines needed to be instituted soon, none of the suggested guidelines were strongly supported. Half of the coaches surveyed thought examinations to discern the presence of such aids should be instituted at AIAW national championships. Slightly more agreed that AIAW should require a statement from each athlete that the athlete will not use ergogenic aids during the athletic events. These two control programs have been used with

TABLE 4

PERCENT RESPONSE TO SUGGESTED GUIDELINES FOR AIAW

Item		Agree	No Opinion	Disagree
4.	If an athlete normally uses a drug to arrest a physical condition such as asthma or emphysema, she should be allowed to participate in her sport while under the effect of this drug.	89.2	2.6	8.2
8.	Women intercollegiate athletes should be allowed to use amphetamines to aid athletic performance.	.8	.7	98.6
11.	Women intercollegiate athletes should be allowed to use sedatives to aid athletic performance.	2.2	3.3	94.4
13.	Women intercollegiate athletes should be allowed to use androgenic-anabolic steroids to aid athletic performance.	.8	2.6	96.7
15.	Women intercollegiate athletes should be allowed to use local anesthetics to aid athletic performance.	13.0	3.7	83.3
18.	Women intercollegiate athletes should be allowed to use oral contraceptives to aid athletic performance.	13.7	16.7	69.6
33.	AIAW should adopt a 'wait and see' attitude toward establishing guidelines aimed at the use of ergogenic aids by women intercollegiate athletes.	13.3	5.7	81.0
34.	If ergogenic aids are used by women intercollegiate athletes, the presence of team doctors should be required during AIAW regional and national tournaments to insure the safe use of these aids.	82.1	9.5	8.4
35.	Examinations to discern the presence of ergogenic aids in competing athletes should be instituted at AIAW national championships.	50.4	15.3	34.3
36.	AIAW policies should require a statement, signed by each individual athlete, that the athlete will not use ergogenic aids during the athletic event.	63.5	14.1	22.4
37.	To make people aware of the possible uses and abuses of certain ergogenic aids, an intensive educational campaign concerning effects and side effects of ergogenic aids should be sponsored by AIAW and directed to coaches and athletes.	89.7	4.2	6.1

some success at the Olympic level (5, 9). Many of the coaches considered the presence of team doctors mandatory during contests even if ergogenic aids were not used.

The response to item 37 appeared to summarize the population's opinion toward the use of ergogenic aids by women intercollegiate athletes: More information is needed. Ninety percent of the respondents agreed that AIAW should sponsor an intensive educational campaign concerning the effects and side effects of ergogenic aids to be directed to coaches and athletes. The six percent who disagreed with this item possibly thought it would result in wasted effort if the material were relegated to the wastebasket as so often happens. It is also possible that this small percentage may already have a fairly comprehensive knowledge of the uses and abuses of drugs in athletics.

Analysis of Opinion with Reference to AIAW Geographical Region, Type of Training, Sports Coached, Sex, Age, and Coaching Experience

Little association existed between the opinion of respondents from the various subgroups. The main relationships found were with the sex of the respondent and the type of training the respondent had received. Female AIAW coaches had a much stronger opinion against the use of sedatives and oral contraceptives to improve athletic performance than did male AIAW coaches. Also, those respondents with more diverse backgrounds of training for coaching (i.e. Physical Education major, playing experience, and coaching courses) were slightly more receptive to the use of drugs to aid athletic performance.

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